1

SEQUENCE LISTING

<110> WEISS, BERTRAM
       GESERICK, CHRISTOPH
       HAENDLER, BERNARD

<120> HUMAN PEM AS A TARGET FOR BIRTH CONTROL AND TREATMENT
       OF ALZHEIMER'S DISEASE

<130> SCH-1810

<140> 09/867,753
<141> 2001-05-31

<150> DE 10027170.7
<151> 2000-05-31

<160> 6

<170> PatentIn Ver. 2.1

<210> 1
<211> 577
<212> DNA
<213> Homo sapiens

<400> 1
```
tccaacatca ggcgctccag ccatggcgcg ttcgctcgtc cacgacaccg tgttctactg 60
cctgagtgta taccaggtaa aaataagccc cacacctcag ctggggcag catcaagcgc 120
agaaggccat gttggccaag gagctccagg cctcatgggt aatatgaacc ctgagggcgg 180
tgtgaaccac gagaacggca tgaaccgcga tggcggcatg atccccgagg gcggcggtgg 240
aaaccaggag cctcggcagc agccgcagcc cccgccggag gagccggccc aggcggccat 300
ggagggtccg cagcccgaga acatgcagcc acgaactcgg cgcacgaagt tcacgctgtt 360
gcaggtggag gagctggaaa gtgtttttccg acacactcaa taccctgatg tgcccacaag 420
aagggaactt gccgaaaact taggtgtgac tgaagacaaa gtgcgggttt ggtttaagaa 480
taaaagggcc agatgtaggc gacatcagag agaattaatg ctcgccaatg aactacgtgc 540
tgacccagac gactgtgtct acatcgtcgt ggactag 577
```

<210> 2
<211> 184
<212> PRT
<213> Homo sapiens

<400> 2
```
Met Ala Arg Ser Leu Val His Asp Thr Val Phe Tyr Cys Leu Ser Val
  1               5                  10                  15

Tyr Gln Val Lys Ile Ser Pro Thr Pro Gln Leu Gly Ala Ala Ser Ser
             20                  25                  30

Ala Glu Gly His Val Gly Gln Gly Ala Pro Gly Leu Met Gly Asn Met
         35                  40                  45

Asn Pro Glu Gly Gly Val Asn His Glu Asn Gly Met Asn Arg Asp Gly
     50                  55                  60
```

```
Gly Met Ile Pro Glu Gly Gly Gly Gly Asn Gln Glu Pro Arg Gln Gln
 65              70              75              80

Pro Gln Pro Pro Pro Glu Glu Pro Ala Gln Ala Ala Met Glu Gly Pro
             85              90              95

Gln Pro Glu Asn Met Gln Pro Arg Thr Arg Arg Thr Lys Phe Thr Leu
            100             105             110

Leu Gln Val Glu Glu Leu Glu Ser Val Phe Arg His Thr Gln Tyr Pro
        115             120             125

Asp Val Pro Thr Arg Arg Glu Leu Ala Glu Asn Leu Gly Val Thr Glu
    130             135             140

Asp Lys Val Arg Val Trp Phe Lys Asn Lys Arg Ala Arg Cys Arg Arg
145             150             155             160

His Gln Arg Glu Leu Met Leu Ala Asn Glu Leu Arg Ala Asp Pro Asp
            165             170             175

Asp Cys Val Tyr Ile Val Val Asp
            180
```

```
<210> 3
<211> 10968
<212> DNA
<213> Homo sapiens

<400> 3
caatacaaga gaatgtctgt gttaagataa ggggttgtgg agaccaaggt tcccattatg 60
cagaggaagc ctccaggtag ctggcttcag agagaataga ttgtaaatgt ttcttacttg 120
agttgattct ctcctggatc aagaaaaagg cctgcacaag aaagggatt ctcttgagaa 180
tgtacatttc cccccacaag agacagcatt gcaggactgt ttcaaaatat gacaaagaaa 240
cacatagggt aaaaatacttt tgatttcttt caagccttgc tatctgtcat gtgatgctat 300
actagagtta ggctggaaat tggtgtctta ttgccacaga gtatgttagt cttaagttct 360
gttctaacgt taagactggt cagctgtaca cgaattccaa aagggagtag ggaataataa 420
ggcatgtctg acgcctactt cctgtcatga cctgaataag tttttcaggt taactttgga 480
atgcccttgg ctgagaggag ggatccattc agatagttgt ggggcttcga attttatttt 540
tggtttacaa tagcatgaac aaagcagagg tctgacagct tcgttccagt gagtggatat 600
tctggaacat tgctcagggt accatcttct tactcttctt tgagcagcac taaatgaaaa 660
ggtccccttt caccttgtaa tcagcaggaa gtgggattct ctcgaagatg ttgaagatga 720
caaaataaac ttaaaggatt gttcatctgc ttttgagcta gggaaggtat aacaatatgc 780
tttctgggcc gggggggggg gagaaaatgg agaagagcct cttttgggc ttaatgaaat 840
ttttgcttgt gtttctttg aagcagcagg atctttgggg cagaatagct cctattcccc 900
tgtgtccccc acaaaaaggg agggcagtga acagaatttg gagcatagtg gagtggatca 960
acgttcagct gccaccttcc cataaatcct atgagtagcc acctaggaag tttctcttta 1020
gagtccagaa tttggactga actagtcagc ataactggaa ctcagcttta tctgggaata 1080
cactgttgtc tcaccaggaa tctgcttcac cccttcttgc acatatttgt ggtccctaaa 1140
ggggcaaggt ggtgaggatg gcataatggc aggggtaggg agggggagtg gagaaggatg 1200
tatgggtggc tgcaaactca caatgacgct tggtaaactt ctgtgatgtg cagggcctat 1260
tgttgatggc aagccaggga tgtcatttca tgaaagatct ccttgtcatt ttgtttaaat 1320
ggctttcttt ttttttttttt ttgatatgga gtctcactct gttgcccagg ctgaagtgca 1380
gtggtgcgat cttggctcac tgcaacctct gcctcctggg ttcaggcctc ccgcatagct 1440
gggattactg gtgcctgcca ccacatccag ctaattttttt tgtatttttg atagagacag 1500
ggtttcacca tcttggctag ctggtcttg aactcctgac ctcctgatcc acccgcctca 1560
gcctcctaaa gtgttaagat tacaggtgtg agccactgca cctggcctta aatggctttt 1620
```

```
taaaaacaat ttgcacctat accctactaa ccacaattgg cacacaaaaa caaatatatt 1680
gagaatttgc ctctttattg ataacataag tgcagaggag ataagggtag cctgagcggc 1740
atgggcagcc caggtgtcag tggcaccaga aaaacccatc tccaaactag ctcctgaaga 1800
aggatggcat tctagggcta gtccacgacg atgtagacac agtcgtctgg gtcagcacgt 1860
agttcattgg cgagcattaa ttctctctga tgtcgcctac atctggccct tttattctta 1920
aaccaaacct acaatcagag ggaaaagggg attggtttag tatattgaac agttaatgtc 1980
gtaatagaaa aacacaggat gcaactttat atgctattga gattttaaac tgcatcagga 2040
aaagctattt cctcattgct aaaatacctt aggaaagtta acaacatagc ccgtggccct 2100
tcagctcacc cttagtgagg accagctttg tgccaagtcc tggaataagc ttattacttt 2160
gtatctctct tctccatttt atttatttat ttatttatta tttatttatt tatttattta 2220
tttatttttt gagacagggt cttgctgttt tgcctgggct gggatccagt ggtgcaatca 2280
tagctcactg tgacattgaa cttctgggct caagagatcc tcccacctca ccctcccaag 2340
tagctggtac tagaggtaca tgccactatg cccagctgtt ttaattttc tgtagagaca 2400
gggtctcgct atgttgccca ggctggactt gagctcctgg cctcaagtga tcttcccacc 2460
ttggtgtccc aaagtgttgg gattacaagc gtgagccact gtgcccagcc ccaattttaa 2520
tattctttaa tggttacttc cagatattgg atgcagttct ggcttatgag ttgttccagg 2580
tccttgctgt ttgttaattc aatgcctggc aacagggtaa caaaaggtgt gcatctgaca 2640
agtgaccatc aactatccag ctgcctcctg ctccctcctc actagggaga gtttcatctt 2700
gtttgtggga gaagttcggc atggtaaaaa gtgggcctaa tttcaaatca ttttcagggg 2760
attgtttaaa aaatccatct ttagtatgta gtaaataata ggaaagagcg cactggaatt 2820
ttagacaggt ttccttccag gatgtctaag ggatcattcg tcctctggca agagaggcct 2880
ggacactgcc ttgatatttt agcctgtagc attaaggaaa gttgaaacca gctcgaccca 2940
aattaactga aactctcaaa aatctttgct cacccaatag tttaggggaa agaggcatac 3000
cattgtcacc aatgccaaat cttcgttctc caatctgctg cactctccaa accttcctgg 3060
gctcaggaca aggtcagctc actctgtttt acctacagct ccaggatcct ggactggagg 3120
tgctgtagcc cagtaaggca gggcccccta ggccctgcta ctcaaccagg agatctgaat 3180
cccaccccct attcctaagg cagaaaggtg gaaccagcat tttaggaaga tggttaacat 3240
caatgtgggg gaagggtcac aaatatggct cctccctaaa tatctgccaa caattaaaaa 3300
gcaaacagac aaaaaaagcc tgtcagttag atgtcactat cctctcagca acctagttaa 3360
cggagtttat attgtattta ttactttcaa aagttctcaa actgcaaatt gtaagctgca 3420
caaagggcct tctttctcta cctgacacgt ctttttcact ttcccagtta aggatttgca 3480
gtatttctgc tgcatgaggc cagtctctaa aagtctaaaa gagctcattt tgggagcttt 3540
caagtgtacc actggtcaaa tctctataaa cataaccaaa gtgtacagtg ggttaactgg 3600
tatgttctga tactaggtct gcattcccaa tactggtttc ataaaccagt tgcattacat 3660
ctgcaaaagc tatggggaaa ctatgtatta ctttcttggg ggaaatttat gctgtatagt 3720
ttggagatac atgagagcat tctgtctctt cccttatttg tatcttgtgg ctcatattct 3780
tttcagagca ctaaggagag aacattatgt cgactcaggg aggagaaaaa caactcacca 3840
agccttgttt ttcttttcct ctgagtttgc cttaccagct ggagaaaagt gatcccaacc 3900
tcttttcaac ttctccaacc cgaaccaggt gtgattgtga gtccaccctt tgccattagg 3960
atgccagcac tcagtaaccc gctttgttag tttgcttttt tggacaaccc actaccagat 4020
cggcagtgca tttccctcac tacactcaca catgcactct gcataaaagc taataataag 4080
gtcatcctga ttttgttttt ttctttttg ggaaaacatc actttgatac tatgtatggt 4140
tttctttggt cttaagtggt catcacttga atcctatgac ctactaatta gttaacactg 4200
cttaaaggaa tgaaaagtat ttgaaattaa catgggtgtg aatctaccct aaaatgaggg 4260
ccacctctcc aaacaaattc cagaaaaccc acctcttcaa aaaagtacca ccaaaaagaa 4320
atataaatcc ttagatggat agaaattcct caagagaaca gtcacttaaa catttagtag 4380
tttcataatg ttgaatttgt atagtacatg catagtatgt gcaaagccta ttttgaccat 4440
atttctctct aaccttttca cccttcttgg tcaactgaaa tgaattcaat attactcatt 4500
ttgtttgctt cattctttag acaattttcc aaagcataca aaccttacaa accttcctca 4560
atttcaaaat aatgtgacta ttttagcaat attttcaggt tgacacatca aagtattta 4620
gaaaattaaa acttagggct gccactctct atactgcttt accaataact taaaaacaaa 4680
caaagaagga ccagggcgtt ggacatataa gctatcttcc catcagtctc agcttaacta 4740
agtatacatt atttagtcat gtaatgtgtt ctgtggtga attactccct catcccaata 4800
tttataaatt cactcattta gctaagtgtt tatgcctggc cttaaataat ttagtacact 4860
tgaaccctct tataaccctg ctcctccctg cattaacttg aatacttcta aggtaagact 4920
gaaccccacc atgactctac acagaaattg ttcctaaaag ataccagcgt tagaaggagt 4980
tgaatttttat ttattggata catacatata tgtataaatat ataatacaca tatgtgtatt 5040
atacattatc atacatatat gtattatata ttacacatat atgtataata tataatacac 5100
```

```
atatgtatta tatataatac atatatgtat aatatatgtg tttcatatgt atgtatttgt 5160
ttaattttgt atacagatta ggagaagcag tttttgtttt gtttttcctt taggaaatca 5220
tattccctaa ttggaatggg aaagaggaaa gaaccataag ctggagctta cttccttttc 5280
taccgacaag gaacccaaac ttcaaaactt atttgtcaac ataaaaaaga caataataaa 5340
aacaacaact ttagaacgtt caggacaaag ccttcaaagc cttcaatgcc ctgaagcagg 5400
ttttagaatg gctgtcctct caaattgctt tttcaagtgt actgacccgc actttgtctt 5460
cagtcacacc taagttttcg gcaagtttcc ttctgtggag agaagatcac acatggttag 5520
tattcaaagt tgtggatgaa atgaaatata tagtatgtac tatttacttc atgcttgttt 5580
tacaatttat aatctcccct cacacctccc ccaagtatat acttttctct aattcccagc 5640
tccatggttg ctttagaaat ggtttaccct catcacgaaa tttaaggtga cgttaacaac 5700
tcagtaatca agagaaatac cttttttttt ttaaattgag acaaggtctc actctgtctc 5760
ctaggctgga gtgcagtggt gtgatttcag ctcactgcaa cctccgcctc cggggttcag 5820
acgattctcg tgcctcagcc tcccgagtag ctgcgattac aggcacatac caccatgccc 5880
agttgatttt tgtattttta gtagagatgg ggtttttgcca tgttggccag gctggtctcg 5940
aactcctgcc cgtctcagcc tcccaaagtg ctgggatttg gggcatgaac caccgcaccc 6000
ggccaagatg aataatttaa tgcattatta ttatttttat tattattatt tgagacaggg 6060
tctcactgtc gtctatgttg gagtgcagtg gcaggatcac tgctcactgc agcctgcatg 6120
tcctgggctc gaacgatcct cctgcctcag ccttccaagt ggctgggagt acaggcacac 6180
accaccacac ccacatggct aattttttaa gttttattta gagacggggt tttgccatgt 6240
tgcccaggct gttcttgaac tcctggactc aagcaacctt cccaccttgg cctcccaaaa 6300
gcgctgaaat tacaggcctg agccaccgtg cctggcccta atgcactatt ttaataaata 6360
acaattaatg caaaaatctg tgatgaggac caggcactgt ggctcaggcc tgtaatccca 6420
gcagtttggg aggccgaggc aggcaaattg cttgagccca ggagtttgag actagcctgg 6480
gcaacacggc gaaaccttat ctctacacac aaaaaaaata caaaaattag ccaggtgtgg 6540
tggcctgtgc ctgcagtccc agctactcag ggggctgaca cgggaggatg gcttgaaccc 6600
aggaagcaaa tgttgcagag agctgaaatc gcactgctgc actccaacct gggccacaga 6660
gagagactct gtctcaagac aaaacaaaaa aaccagaaaa acaaaaaacc aaccaaacaa 6720
acaaaaaaaa actatgatga acaaattatc aaaattttaa ataaggaag gatctagcac 6780
tgtagttgca tgacagtacc tcattctcct taccccaatt tcaataaaat tttatttata 6840
aaaacagacc acagctgggt gtgtggctc actcctataa tcccagcaac tcaggaggct 6900
gagatgggag gattgcttgg gtgacagatc ccccactcaa caaaaacaac aacaacaaca 6960
aaaacaggcc atcatcacag gtaataaaag aaaaaataca taacttggac tatatcaaaa 7020
tttaaaactt ctgtatatca aaagatgcaa tgaacagagt aaaaagacaa ctcatagaat 7080
ggaaggaaat atttgcaaat cacatctgat aagggggttaa tatccagagt gtataaagaa 7140
ctcctacaac ccaataacca aaaaaaaaga aagaaagaaa gaaaaagcca ctcagatttt 7200
aaaatgggta aaggacttaa agagatattt ctccaaagaa gatatacaag tggccactaa 7260
gcacatgaaa ggatgcacaa catcactaat cattagggaa aagcaaatcg aaactacaat 7320
gaagtatcac ctcacaccca ttaggatggc tatgtaaaaa accccagaaa ataacaagtg 7380
ttggtgagga tgtggagaaa ctggaacccc catgtactgt tggtgtgcac ctgtatctat 7440
aaaatggaat attatttagc cttaaaaagg aaggaaattc taatatatgc tgcgatatgt 7500
atgaaccttg aagaccttat gctaagtgaa ataagtcagt gacaaaaatg caaatactgt 7560
atgattctac ttacatgaga tacctagagt agtcaaaatc atagagacat aaaatagtag 7620
aatggtggtt gccaagggct ggggaaaggg ggaaaagggg agttgcttaa ctggtataga 7680
gacttagctt ggcaagatga gaagaattct agagatctat tgcacaacaa tgtgaacata 7740
cttaacacaa ctgaactcta tacttaaaaa gtggtttgga cggtaaattt catatttccg 7800
tgtatttac cacatctta taaaagggag gcacggacta gtttccaggt ttcattcaca 7860
taaacattgc aataaaacat ttaccttgat gcccaggagg taaatatccc cctccacacc 7920
agcacaaagg caggcaagga cccccagtgg ctttttcctc atgattgggt ggggcaaggg 7980
agagaaaaag atgcctcgaa acgaacttgg agatctcgtg gctcctggag caggccactt 8040
accttgtggg cacatcaggg tattgagtgt gtcggaaaac actttccagc tcctccacct 8100
gcaacagcgt gaacttcgtg cgccgagttc gtggctgcat gttctcgggc tgcggaccct 8160
ccatggccgc ctgggccggc tcctccggcg ggggctgcgg ctgctgccga ggctcctggt 8220
ttccaccgcc gccctcgggg atcatgccgc catcgcggtt catgccgttc tcgtggttca 8280
caccgccctc agggttcata ttacccatga ggcctggagc tccttggcca acatggcctt 8340
ctgcgcttga tgctgccccc agctgaggtg tggggcttat ttttacctgg tatacactca 8400
ggcagtagaa cacggtgtcg tggacgagcg aacgcgccat ggctggagcg ctgcgcccct 8460
gcacaaactc cgtggcgtct gcagctggag tggggttag agggtggagc tagttcctgt 8520
tctcatgctt ggtattggtt acagttgcaa tgagtgggac ttgcttatgc gcacaagcaa 8580
```

```
gagagggaat ggagaggagt gggggggatgg gaagttgggg ggtgcgggtg gggagtgggg 8640
gtgttgcagg tgggagtggg gggttgtgag tgtggggtgg ggtgcaggtg gggatggggg 8700
tgtgggtgga gggtggggggg tgcacagtga gggtgggggt tgcgggtgag ggtaggggtt 8760
gtgggttggg gtggggggttg ccggtggggg tacatggtgg gggtgggggt agcgggtgga 8820
gatgggaggt gtgggtggag ggtgcgtggt ggggtaggg gttgtgggtg ggggtgaggg 8880
gtgtggtatg ggtcgtgggt gggggtggca gttgagggtg gagtggggtg gccaaaacac 8940
aggggcagtg tggagaagaa aagggccaat aggaggcata tatgtatgca acatggggcc 9000
ccagcttgca gctttgctga ctacacccta ctcgggccta gttattaccc tgaggaaagc 9060
tgatttgggg gctcagaggg gaggtgagat ctcacggtga ccataggacg ccttgagtaa 9120
aagtttggag aatatctcat ggcctgaccc tccatatttg gcagcatgca cagggcgcgg 9180
gctattaatt aagcagaaat gattgactgg gggctgcttg ttcagagttc cagcaaaggc 9240
actgaaagca gagctgccat gctctcttca gtgctgggat cgggatcttg gagatgggac 9300
tgcagagcat tctgggtggt aagatgtgct ctgcaagaaa tctaacgcac cctttgagaa 9360
agtcaacaca gaataaacac gaggctgaat ctgttagcct gagactgaat atctttggct 9420
atgcaagaga aacctgtact catggcaaaa tggagtgcta taaggacaag caaaaaataa 9480
ataaataaat aaaatcgggg atggtatagg aagagcacca gtaagggcat acctgccaaa 9540
aatctccaat cttgggatgg agatttggga tttatggata tgcagcttac tggatgtggg 9600
gccacttctg ctccacagag ccttgtaact acacagcctt cctaccactg accccaataa 9660
gcccaattac gaagaaaaac cctgaagagc ctggtgcagt ggctcctgca ctagtcccag 9720
ctactcagga ggctgagatg ggaggatcac ttgaacccag gagtttgagg ctgtggtgag 9780
ctagaatcac atggcagcac tccagcctgg gcaacagaca gaggcccctt ttctttaaaa 9840
taaataataa aataagaaat aaaatgaaaa tgaaagaaag gaaagcgcta agagagtctg 9900
tcatgaggaa gggcatggag atgtcttttg agggtggaca actcatgaat ccttaattt 9960
tctagagatt gtgtgtgtgc tcttaagtga tgttatatac tttattttgt tttttaaaaa 10020
tatttttaaa aattttattt ttaaatgttc ttttaaaaac tttctgtatc tatttatatc 10080
tattggttat ttgaggattt tttggcagca tatataaata tgcagaccct ttgagtctgt 10140
agcctaccaa gagagatagc tctcgtcttc atggtgattc tgagcatgga aaggcccttg 10200
cacttggcag catgacaagg actaagccac tcgctccatt aattgactgc catccactgg 10260
gctaagtgag atccttgcgt tctatcccta gtgagagaag agagaggaag aagaagaaaa 10320
atagaaagat aataagaaaa tagaaaaaga aatgaataaa tgtacattgt ggggagcagg 10380
aaaggactac cagtaatggg aggcatcagc taggagcaca gatccgaagc atgactcact 10440
gtgtgtccta ggacactgga tgaatctatc tggttctcag cttcctcacc tataaaatgg 10500
agataacaac agtgtctcga tcatagggtt ttcatgagag ttcaatgagg caaggcatac 10560
atgtaactga acacagctcc gactgctcac cagttgcaaa gtccagtgaa caagaacgac 10620
gtctggtaga aagaaagtgg ctttattcca gagctagttg aggggaagta gtacaggctg 10680
ccttggaggaa gccactaaag cctttggggc agaaggcagg agctttgaaa gtggggcttg 10740
gcgtgaatgg catgcagggg agagggcgat gaagtgcaga gtctatgtga cttgcttcgg 10800
atgtcttatc tatcaggtgg tctggctggc accgtcacgg gcagagctag gttgtaagtt 10860
gaggcaatct caatttgcct cctggtagga gagagttctg gaggttcctg gtttgcttta 10920
aggttcggtc tctgtaactt ctaagtaaac atgtagttag ataagctt             10968
```

<210> 4
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 4
atggcgcgtt cgctcgtcca cgac   24

<210> 5
<211> 24
<212> DNA
<213> Artificial Sequence

```
<220>
<223> Description of Artificial Sequence: Primer

<400> 5
tagtccacga cgatgtagac acag                                    24


<210> 6
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 6
ctagaagcat ttgcggtgga cgatggaggg                              30
```